

CLAIMS

We claim:

Sub a1
1. A system for authenticating one or more acquired signals, the system comprising:

one or more acquisition devices for creating a representation of one or more input signals, a signal

5 output connected to one or more application devices; and

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a responder receiving the signal representations from the acquisition devices, and, in response to challenges received from one or more challenge generator devices, and the responder sending one or more responses that are a function of the signals and the challenges, the signal representations capable of being verified by comparing the responses to the function of the signals and the
10 challenges.

2. A system as in claim 1, where the signal representation is digital.

3. A system as in claim 2, where the responder is a computer system having one or more central processing units and one or more memories.

Sub a2
15 4. A system, as in claim 1, where the signal is one or more of the following: a biometric signal, a fingerprint image, a face image, an iris image, an audio signal, and a speech signal.

5. A system, as in claim 1, where the acquisition device is one or more of the following: a camera, a biometrics sensor, a semiconductor-based fingerprint sensor, a micro-mechanical sensor, and a microphone.

6. A system, as in claim 1, where the responder has two or more selectable functions, the functions being selected by one or more configuration inputs and the functions modifying the challenge.

7. A system, as in claim 6, where the configuration inputs are connected to an external source that selects the function.

8. A system, as in claim 7, where the external source includes one or more of the following:

a set of switches, a jumper block, a clock, a global positioning system signal, an external computer, and a pseudo-random number generator.

9. A system, as in claim 1, where the responder function includes one or more of the following: a checksum, a pseudo-random sample, a block of contiguous samples, and a function of selected samples of the signal.

10. A system, as in claim 1, where the acquisition device and the responder are both located on a single semiconductor chip.

11. A system, as in claim 1, where the signal representation is transmitted to the application device over a network.

12. A system, as in claim 1, where the challenge is received over a network and the response is transmitted over the network.

13. A system, as in claim 1, where the application device is one or more of the following: a computer, a transaction processor, a web server, and a database system.

14. A system for authenticating one or more acquired signals, comprising:

means for creating a representation of one or more input signals;

means for creating one or more challenges;

means for creating responses that are a function of the input signals and the challenges; and

means for verifying the responses by comparing them to the function of the input signals and the challenges.

15. A method for authenticating one or more acquired signals, comprising the following steps:

creating a representation of one or more input signals;

creating challenges;

creating responses that are a function of the input signals and the challenges; and

verifying the responses by comparing them to the function of the input signals and the challenges.

- 5 16. A computer product for authenticating one or more acquired signals that performs the following steps:

creating a representation of one or more input signals;

creating challenges;

creating responses that are a function of the input signals and the challenges; and

verifying the responses by comparing them to the function of the input signals and the challenges.

- 10 17. A business process for authenticating one or more acquired signals, the process comprising the steps of:

creating a representation of one or more input signals;

creating challenges;

creating responses that are a function of the input signals and the challenges; and

verifying the responses by comparing them to the function of the input signals and the challenges.

18. A business process, as in claim 17, where the input signals include any one or more of the

5 following: one or more fingerprints, face, iris, and voice.

19. A business process, as in claim 17, where the challenge response functions include any one or more of the following: signal values at discrete points, a mathematical function of discrete signal values, a hash of the signal values, and a checksum of the signal values in a delimited area.

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